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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/783,008 | 02/15/2001 | Gary A. Gibson | 10003492-1 | 1270 |

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

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| EXAMINER |
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CHU, KIM KWOK

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| ART UNIT | PAPER NUMBER |
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2627

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 09/783,008 | Applicant(s) GIBSON, GARY A. | |
| | Examiner Kim-Kwok CHU | Art Unit 2627 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Appeal Brief filed on 4/22, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-17, 19 and 21-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5-8, 15-17, 19 and 21-31 is/are allowed.
- 6) ☒ Claim(s) 9, 11, 12 and 14 is/are rejected.
- 7) ☒ Claim(s) 10 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/15/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Remarks

1. Applicant's Appeal Brief filed on April 22, 2005 have been fully considered.

Applicant does not agree that the prior art of Manalis teaches an energy emitting tip (page 7 of the Appeal Brief, last paragraph). In addition, Applicant does not agree that the prior art of Manalis teaches a fluid layer (page 8 of the Appeal Brief, second paragraph). Accordingly, the final rejection is withdrawn and a newly found prior art of Zenharusern et al. (US. 5,607,568) is cited to reject claims 9, 11, 12 and 14.

Claim Objections

2. Claim 11 is objected to because of the following informalities:

(a) in claim 11, line 1, the term "tip thermal" should be changed to --tip emits thermal--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless --
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

4. Claims 9, 11, 12 and 14 are rejected under 35 U.S.C. § 102(b) as being anticipated by Zenharusern et al. (U.S. Patent 5,607,568).

Zenharusern teaches an atomic force microscope (AFM) having all of the elements and means as recited in claims 9, 10 and 14.

For example, Zenharusern teaches the following:

(a) as in claim 9, a data-storage device (Fig. 1; biomolecule 12 is a type of data);

(b) as in claim 9, a storage medium 30 (Fig. 1; data 12 is stored/supported in medium 30; column 8, lines 24-30);

(c) as in claim 9, nanometer-scaled data storage areas 12 in the storage medium 30 (Fig. 1; data 12 located in a nanometer-scale data area);

(d) as in claim 9, an energy-emitting tip 16 positioned in close proximity to the storage medium 20 (Fig. 1; AFM type tip emits energy; column 8, lines 34-37, lines 51-55);

(e) as in claim 9, molecules positioned between the energy-emitting tip 16 and the storage medium 40 wherein the molecules are at least partially immersed in a fluid medium 14 (Fig. 1; column 8, lines 3-7);

(f) as in claim 11, the energy-emitting tip 16 emits thermal energy (Fig. 1; AFM tip emits light energy; column 8, lines 51-55);

(g) as in claim 12, each of the molecules 12 comprises a one-dimensional molecules (Fig. 1; the molecules are arranged in a line); and

(h) as in claim 14, the molecules comprise conductive molecules (Fig. 1; the fluid is conductive solution).

Allowable Subject Matter

5. Claims 1-3, 5-8, 15-17, 19 and 21-31 are allowable over prior art.

6. Claims 10 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claims 1, 15 and 22, the prior art of record fails to teach or fairly suggest a data storage apparatus/method having the following features where an energy-emitting tip positioned in close proximity to the storage medium; a fluid medium positioned between the energy-emitting tip and the storage medium and the fluid medium comprises a ferrofluid.

As in claim 10, the prior art of record fails to teach or fairly suggest a data storage apparatus having the following features where an energy-emitting tip positioned in close proximity to the storage medium; a fluid medium positioned between the energy-emitting tip and the storage medium and the energy emitting tip emits electrons.

As in claim 13, the prior art of record fails to teach or fairly suggest a data storage apparatus having the following features where an energy-emitting tip positioned in close proximity to the storage medium; a fluid medium positioned between the energy-emitting tip and the storage medium and the one dimensional conductor molecule comprises at least one type of molecule chosen from the group consisting of diols, polymers, surfactants, nanotubes and polymers.

As in claim 21, the prior art of record fails to teach or fairly suggest a data storage apparatus/method having the following features where an energy-emitting tip positioned in close proximity to the storage medium; a fluid medium positioned between the energy-emitting tip and the storage medium and the fluid medium comprises a magnetic material.

As in claims 23 and 29, the prior art of record fails to teach or fairly suggest a data storage device/method having the following features where an energy-emitting tip positioned in close proximity to the storage medium; a fluid medium positioned between the energy-emitting tip and the storage medium and the fluid medium comprises a metallic material.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

8. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch, can be reached on (57) 272-7589.

The fax number is:

(571) 273-8300 (for formal communications intended for entry. Or:

(571) 273-7585, (for informal or draft communications, please label "PROPOSED" or "DRAFT").


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).



THANG V. TRAN
PRIMARY EXAMINER

Kim-Kwok CHU


Examiner AU2627
May 26, 2006

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5/26/2006